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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/606,988
Filing Date: June 26, 2003
Appellant(s): THOMAS, DAVID W.

Maria C. Gassaway
For Appellant

EXAMINER'S ANSWER

MAILED
DEC 20 2005

GROUP 1700

This is in response to the appeal brief filed 21 September 2005 appealing from the Office action mailed 19 May 2005.

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(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

A substantially correct copy of appealed claims 1-31 appears on page 24-28 of the Appendix to the appellant's brief. The minor errors are as follows:

In Claim 1, line 3, "first conveyor fibrous material..." should be "moving fibrous material...".

In Claim 15, line 3, "first conveyor fibrous material..." should be "moving fibrous material...".

(8) Evidence Relied Upon

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6,030,559	BARRY et al.	2-2000
4,632,685	DEBOUZIE et al.	12-1986
5,843,523	MAZZA et al.	12-1998

Brossy is directed to a method of manufacturing mineral wool products by driving conveyors at different speeds (2:63-67) to provide a smooth and even surface (2:42-44).

Barry is directed to a method of fabricating a composite of foam and one or more layers (2:18-22) of fiberglass fibers (2:32-35) using pull rolls (8:38-42).

Debouzie is directed to a method of manufacturing mineral fiber felts (1:5-12) having improved resistance to compression and tearing in the direction of the thickness of the product (2:34-39) by conveying with conveyors traveling at progressively decreasing speeds (8:36-57) encouraging formation of a surface layer and re-arrangement of the fibers within the felt (6:46-53).

Mazza is directed to a method for coating a continuous web of fabric with adhesive agents (2:52-65) using a driven spike roller which pulls material from the stand (7:4-7).

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 15, 30 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brossy (USPN 4,992,227) in view of Barry (USPN 6,030,559).

As to Claim 1, Brossy teaches a method for manufacturing smooth surface board from fibrous material (Col. 2, Line 41-47), the method comprising the steps of: moving fibrous material through an oven on a first conveyor assembly to produce a board of fibrous material (Col. 5, Line 20-25), the first conveyor assembly including a first upper conveyor and a first lower conveyor (Col. 5, Line 20-25); passing the fibrous material through the oven at a speed different from the speed of at least one of the first upper conveyor and the first lower conveyor (Col. 3, Line 5-14), causing the fibrous material to skid relative to the at least one of the first upper conveyor and the first lower conveyor (Col. 3, Line 13-15), and thereby resulting in a smooth surface board (Col. 6, Line 35-42). Brossy is silent to pulling the board of fibrous material from the oven with a pulling apparatus downstream of the oven. Barry teaches pulling a board of fibrous material (Col. 4, Line 25-38) from the oven with a pulling apparatus downstream of the oven (Col. 5, Line 1-5). The references are properly combinable because both are directed to an apparatus for producing sheets of rigid fibrous boards with a smooth surface. It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to combine the pulling apparatus of Barry in the apparatus of Brossy to further orient the fibers in the board and thereby further improve the smoothness of the surface. **As to Claim 15**, Brossy teaches that which is set forth above in the rejection of Claim 1 under 35 U.S.C. 103(a). Brossy additionally teaches driving one of the first upper conveyor and the first

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lower conveyor at a speed faster relative to the other of the first upper conveyor and the first lower conveyor (Col. 5, Line 5-10). Brossy is silent to pulling the board of fibrous material from the oven with a pulling apparatus downstream of the oven. Barry teaches that which is set forth above in the rejection of Claim 1 under 35 U.S.C. 103(a). The references are properly combinable because both are directed to an apparatus for producing sheets of rigid fibrous boards with a smooth surface. It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to combine the pulling apparatus of Barry in the apparatus of Brossy to further orient the fibers in the board and thereby further improve the smoothness of the surface. **As to Claim 30**, Brossy teaches a ceiling panel that is between 20 to 80 kg per cubic meter (5:30-34). The Examiner calculates 80 kilograms per cubic meter to be equivalent to 4.99 pounds per cubic foot, thus appearing to render the Applicant's 2 to 8 pounds per cubic foot prima facie obvious. **As to Claim 31**, Brossy teaches a ceiling panel that is between 20 to 80 kg per cubic meter (5:30-34). The Examiner calculates 80 kilograms to be 4.99 pounds per cubic foot, thus appearing to render the Applicant's 2 to 8 pounds per cubic foot prima facie obvious.

Claims 2 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brossy (USPN 4,992,227) in view of Barry (USPN 6,030,559).

Brossy in view of Barry teaches the subject matter of Claims 1 and 15. See the rejection of Claims 1 and 15 under 35 U.S.C. 103(a). **As to Claim 2**, Brossy is silent to the pulling apparatus applying pressure to a surface of the fibrous material. Barry teaches pulling rollers (Fig. 1, Items 18 and 19) which pull the board through the oven. The examiner takes the position

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that the pulling rollers taught by Barry inherently apply pressure to a surface of the fibrous material because without pressure, there would be no frictional force between the roller and the board, and the pulling action would be absent. Therefore, it would have been prima facie obvious to one of ordinary skill in the art at the time of the invention that the pulling apparatus of Barry, wherein the pulling apparatus applies pressure to a surface of the fibrous material, be combined with the apparatus of Brossy to further orient the fibers in the board and thereby further improve the smoothness of the surface. As to Claim 16, Brossy and Barry teach that which is set forth above in the rejection of Claim 2 under 35 U.S.C. 103(a). The examiner takes the position that the pulling rollers taught by Barry inherently apply pressure to a surface of the fibrous material because without pressure, there would be no frictional force between the roller and the board, and the pulling action would be absent. Therefore, it would have been prima facie obvious to one of ordinary skill in the art at the time of the invention that the pulling apparatus of Barry, wherein the pulling apparatus applies pressure to a surface of the fibrous material, be combined with the apparatus of Brossy to further orient the fibers in the board and thereby further improve the smoothness of the surface.

Claims 3 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brossy (USPN 4,992,227) in view of Barry (USPN 6,030,559).

Brossy in view of Barry teaches the subject matter of Claims 1 and 15. See the rejection of Claims 1 and 15 under 35 U.S.C. 103(a). As to Claim 3, Brossy is silent to the pulling apparatus applying pressure being sufficient to prevent skidding of the fibrous material within

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the pulling apparatus. Barry teaches pulling rollers (Fig. 1, Items 18 and 19) which pull the fibrous board through the oven. The examiner takes the position that the rollers taught by Barry inherently applied sufficient pressure to prevent skidding because without sufficient pressure to prevent skidding, the pulling action would be absent. Therefore, it would have been prima facie obvious to one of ordinary skill in the art at the time of the invention that the pulling apparatus of Barry, wherein the pulling apparatus applies pressure to a surface of the fibrous material, the pressure being sufficient to prevent skidding of the fibrous material within the pulling apparatus, be combined with the apparatus of Brossy to further orient the fibers in the board and thereby further improve the smoothness of the surface. As to Claim 17, Brossy is silent to the pulling apparatus applying pressure being sufficient to prevent skidding of the fibrous material within the pulling apparatus. Barry teaches pulling rollers (Fig. 1, Items 18 and 19) which pull the fibrous board through the oven. The examiner takes the position that the rollers taught by Barry inherently applied sufficient pressure to prevent skidding because without sufficient pressure to prevent skidding, the pulling action would be absent. Therefore, it would have been prima facie obvious to one of ordinary skill in the art at the time of the invention that the pulling apparatus of Barry, wherein the pulling apparatus applies pressure to a surface of the fibrous material, the pressure being sufficient to prevent skidding of the fibrous material within the pulling apparatus, be combined with the apparatus of Brossy to further orient the fibers in the board and thereby further improve the smoothness of the surface.

Claims 4 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brossy (USPN 4,992,227) in view of Barry (USPN 6,030,559).

Brossy in view of Barry teaches the subject matter of Claims 1 and 15. See the rejection of Claims 1 and 15 under 35 U.S.C. 103(a). **As to Claim 4**, Brossy is silent to a pulling apparatus comprising a second conveyor assembly including a second upper conveyor and a second lower conveyor. Barry teaches pulling rollers (Fig. 1, Items 18 and 19) which pull fibrous board through an oven. The examiner takes the position that the rollers taught by Barry are conveyors, and the pulling apparatus comprises a second upper conveyor and a second lower conveyor. Therefore, it would have been prima facie obvious to one of ordinary skill in the art at the time of the invention that the pulling apparatus of Barry, wherein the pulling apparatus comprises a second conveyor assembly including a second upper conveyor and a second lower conveyor, be combined with the apparatus of Brossy to further orient the fibers in the board and thereby further improve the smoothness of the surface. **As to Claim 18**, Brossy is silent to a pulling apparatus comprising a second conveyor assembly including a second upper conveyor and a second lower conveyor. Barry teaches pulling rollers (Fig. 1, Items 18 and 19) which pull fibrous board through an oven. The examiner takes the position that the rollers taught by Barry are conveyors, and the pulling apparatus comprises a second upper conveyor and a second lower conveyor. Therefore, it would have been prima facie obvious to one of ordinary skill in the art at the time of the invention that the pulling apparatus of Barry, wherein the pulling apparatus comprises a second conveyor assembly including a second upper conveyor and a second lower conveyor, be combined with the apparatus of Brossy to further orient the fibers in the board and thereby further improve the smoothness of the surface.

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Claims 5 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brossy (USPN 4,992,227) in view of Barry (USPN 6,030,559).

Brossy in view of Barry teaches the subject matter of Claims 1 and 15. See the rejection of Claims 1 and 15 under 35 U.S.C. 103(a). **As to Claim 5**, Brossy teaches conveying a board of fibrous material at a speed faster than the speed of the at least one of the first upper conveyor and first lower conveyor (Col. 3, Line 5-14). Brossy is silent to a pulling apparatus pulling the board of fibrous material. Barry teaches pulling rollers (Fig. 1, Items 18 and 19) which pull fibrous board through an oven. It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention that the pulling apparatus of Barry, wherein the pulling apparatus pulls the board of fibrous material at a speed faster than the speed of the at least one of the first upper conveyor and the first lower conveyor, be combined with the apparatus of Brossy to further orient the fibers in the board and thereby further improve the smoothness of the surface. **As to Claim 19**, Brossy teaches conveying a board of fibrous material at a speed faster than the speed of the at least one of the first upper conveyor and first lower conveyor (Col. 3, Line 5-14). Brossy is silent to a pulling apparatus pulling the board of fibrous material. Barry teaches pulling rollers (Fig. 1, Items 18 and 19) which pull fibrous board through an oven. It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention that the pulling apparatus of Barry, wherein the pulling apparatus pulls the board of fibrous material at a speed faster than the speed of the at least one of the first upper conveyor and the first lower conveyor, be combined with the apparatus of Brossy to further orient the fibers in the board and thereby further improve the smoothness of the surface.

Claims 6 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brossy (USPN 4,992,227) in view of Barry (USPN 6,030,559).

Brossy in view of Barry teaches the subject matter of Claims 1 and 15. See the rejection of Claims 1 and 15 under 35 U.S.C. 103(a). **As to Claim 6**, Brossy teaches conveying a board of fibrous material at a speed faster than the speed of the at least one of the first upper conveyor and first lower conveyor (Col. 3, Line 5-14). Brossy is silent to a pulling apparatus pulling the board of fibrous material at a speed slower than the speed of the at least one of the first upper conveyor and the first lower conveyor. Brossy additionally teaches in Col. 3, Line 10 that one method of realizing the invention is to make the lead conveyor the faster conveyor. The examiner takes the position that it would have been obvious to one of ordinary skill to make the alternative choice to make the lead conveyor the slower conveyor and smooth with the fast conveyor side because doing so would avoid buildup of fiber upstream of the conveyor assembly. Barry teaches pulling rollers (Fig. 1, Items 18 and 19) which pull fibrous board through an oven. Therefore, it would have been prima facie obvious to one of ordinary skill in the art at the time of the invention that the pulling apparatus of Barry, wherein the pulling apparatus pulls the board of fibrous material at a speed slower than the speed of the at least one of the first upper conveyor and the first lower conveyor, be combined with the apparatus of Brossy to further orient the fibers in the board and thereby further improve the smoothness of the surface. **As to Claim 20**, Brossy teaches conveying a board of fibrous material at a speed faster than the speed of the at least one of the first upper conveyor and first lower conveyor (Col. 3, Line 5-14). Brossy is silent to a pulling

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apparatus pulling the board of fibrous material at a speed slower than the speed of the at least one of the first upper conveyor and the first lower conveyor. Brossy additionally teaches in Col. 3, Line 10 that one method of realizing the invention is to make the lead conveyor the faster conveyor. The examiner takes the position that it would have been obvious to one of ordinary skill to make the alternative choice to make the lead conveyor the slower conveyor and smooth with the fast conveyor side because doing so would avoid buildup of fiber upstream of the conveyor assembly. Barry teaches pulling rollers (Fig. 1, Items 18 and 19) which pull fibrous board through an oven. Therefore, it would have been prima facie obvious to one of ordinary skill in the art at the time of the invention that the pulling apparatus of Barry, wherein the pulling apparatus pulls the board of fibrous material at a speed slower than the speed of the at least one of the first upper conveyor and the first lower conveyor, be combined with the apparatus of Brossy to further orient the fibers in the board and thereby further improve the smoothness of the surface.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Brossy (USPN 4,992,227) in view of Barry (USPN 6,030,559) and Debouzie (USPN 4,632,685).

Brossy in view of Barry teaches the subject matter of Claims 1 and 15. See the rejection of Claims 1 and 15 under 35 U.S.C. 103(a). As to Claim 7, Brossy teaches conveying a board of fibrous material at a speed different than the speed of the at least one of the first upper conveyor and first lower conveyor (Col. 3, Line 5-14) causing the fibrous material in the oven to slip relative to a surface of one of the first conveyors. Brossy and Barry are silent to pulling the

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boards of fibrous material at a speed different relative both the first upper conveyor and the first lower conveyor. However, Debouzie teaches employing a series of conveyors wherein the pulling apparatus pulls the board of fibrous material at a speed different than the speed of both the first upper conveyor and first lower conveyor (Col. 8, Line 55-57) to produce a longitudinal compression, which produces a thicker mat that resists compression and tearing in the direction of the thickness. It would have been obvious to one of ordinary skill in the art at the time of the invention that a fibrous mat that resists compression and tearing in the direction of the thickness would have been useful in a multitude of applications such as insulation, ceiling tiles, floor tiles, acoustic paneling, and vehicle headliners. Therefore, it would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to use the pulling apparatus of Debouzie, and pulling the board of fibrous material at a speed different than the speed of both the first upper conveyor and first lower conveyor, in the apparatus of Brossy and Barry to achieve the same longitudinal compression that would impart useful characteristics to the board such as improved resistance to compression and tearing in the direction of the thickness, as taught by Debouzie.

Claims 8, 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brossy (USPN 4,992,227) in view of Barry (USPN 6,030,559) and Debouzie (USPN 4,632,685).

Brossy in view of Barry teaches the subject matter of Claims 1 and 15. See the rejection of Claims 1 and 15 under 35 U.S.C. 103(a). Brossy in view of Barry and Debouzie teaches the subject matter of Claim 7. See the rejection of Claim 7 under 35 U.S.C. 103(a). **As to Claim 8,**

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Brossy, Barry, and Debouzie are silent to the pulling apparatus pulling the board of fibrous material at a speed faster than the speed of both the first upper conveyor and first lower conveyor. Brossy teaches conveying a board of fibrous material at a speed faster than the speed of the at least one of the first upper conveyor and first lower conveyor (Col. 3, Line 5-14) causing the fibrous material in the oven to slip relative to a surface of one of the first conveyors, producing a smoothing effect. Brossy further teaches gluing a glass fiber skin to the opposite side of the board in a separate operation (Col. 4, Line 43) in order to avoid the risk of driving the mineral wool mattress by both conveyors alternately. Barry teaches pulling the board of fibrous material through an oven (Fig. 1) with pulling rollers. Brossy and Barry are silent to pulling the board of fibrous material at a speed faster relative both the first upper conveyor and the first lower conveyor. It would have been desirable to one of ordinary skill in the art that both faces of the board be smoothed to facilitate easier handling and make the board more aesthetically pleasing. It would have also been obvious to one of ordinary skill in the art at the time of the invention that the separate gluing operation taught by Brossy could be eliminated if both faces could be smoothed in the same operation. It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention that this dual smoothing action could be achieved by combining the pulling apparatus of Barry in the apparatus of Brossy and pulling the board of fibrous material at a speed faster relative to both the first upper conveyor and the first lower conveyor in order to cause the fibrous material in the oven to slip relative to a surface of the first upper conveyor and a surface of the first lower conveyor such that the opposing faces of the fibrous material are smoothed because doing so would smooth both faces of the board at the same time and allow removal of the separate gluing operation for finishing the second face of the

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board, as well as producing a fibrous board with higher longitudinal strength. **As to Claim 21,** Brossy teaches conveying a board of fibrous material at a speed different from the speed of one of the first upper conveyor and first lower conveyor (Col. 3, Line 5-14) causing the fibrous material in the oven to slip relative to a surface of one of the first conveyors, causing surface smoothing. Brossy further teaches gluing a glass fiber skin to the opposite side of the board in a separate operation (Col. 4, Line 43) in order to avoid the risk of driving the mineral wool mattress by both conveyors alternately. Barry teaches pulling the board of fibrous material through an oven (Fig. 1). Brossy and Barry are silent to pulling the board of fibrous material at a speed different from the speed of both the first upper conveyor and the first lower conveyor. It would have been obvious to one of ordinary skill to pull the board at a speed faster relative to both the first upper conveyor and the first lower conveyor in order to produce a thinner sheet with oriented fibers on both faces for use in confined areas or lightweight applications where a high longitudinal strength was beneficial, or in applications where both faces would be visible to the user. It would have also been desirable to one of ordinary skill in the art that both faces of the board be smoothed to facilitate easier handling and make the board more aesthetically pleasing. Therefore, it would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to combine the pulling apparatus of Barry in the apparatus of Brossy and pull the board of fibrous material at a speed faster relative to both the first upper conveyor and the first lower conveyor in order to cause the fibrous material in the oven to slip relative to a surface of the first upper conveyor and a surface of the first lower conveyor such that the opposing faces of the fibrous material are smoothed because doing so would smooth both faces of the board and allow removal of the separate gluing operation for finishing the second face of

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the board and produce a thinner sheet with higher longitudinal strength. As to Claim 22, Brossy, Barry, and Debouzie are silent to the pulling apparatus pulls the board of fibrous material at a speed faster than the speed of both the first upper conveyor and first lower conveyor. Brossy teaches conveying a board of fibrous material at a speed faster than the speed of the at least one of the first upper conveyor and first lower conveyor (Col. 3, Line 5-14) causing the fibrous material in the oven to slip relative to a surface of one of the first conveyors, producing a smoothing effect. Brossy further teaches gluing a glass fiber skin to the opposite side of the board in a separate operation (Col. 4, Line 43) in order to avoid the risk of driving the mineral wool mattress by both conveyors alternately. Barry teaches pulling the board of fibrous material through an oven (Fig. 1) with pulling rollers. Brossy and Barry are silent to pulling the board of fibrous material at a speed faster relative both the first upper conveyor and the first lower conveyor. It would have been desirable to one of ordinary skill in the art that both faces of the board be smoothed to facilitate easier handling and make the board more aesthetically pleasing. It would have also been obvious to one of ordinary skill in the art at the time of the invention that the separate gluing operation taught by Brossy could be eliminated if both faces could be smoothed in the same operation. It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention that this dual smoothing action could be achieved by combining the pulling apparatus of Barry in the apparatus of Brossy and pulling the board of fibrous material at a speed faster relative to both the first upper conveyor and the first lower conveyor in order to cause the fibrous material in the oven to slip relative to a surface of the first upper conveyor and a surface of the first lower conveyor such that the opposing faces of the fibrous material are smoothed because doing so would smooth both faces of the board at the

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same time and allow removal of the separate gluing operation for finishing the second face of the board, as well as producing a fibrous board with a higher longitudinal strength.

Claims 9 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brossy (USPN 4,992,227) in view of Barry (USPN 6,030,559) and Debouzie (USPN 4,632,685).

Brossy in view of Barry teaches the subject matter of Claims 1 and 15. See the rejection of Claims 1 and 15 under 35 U.S.C. 103(a). Brossy in view of Barry and Debouzie teaches the subject matter of Claims 7 and 21. See the rejection of Claims 7 and 21 under 35 U.S.C. 103(a). **As to Claim 9**, Brossy and Barry are silent to the pulling apparatus pulling the board of fibrous material at a speed slower than the speed of both the first upper conveyor and first lower conveyor. Debouzie teaches employing a series of conveyors wherein the pulling apparatus pulls the board of fibrous material at a speed slower than the speed of both the first upper conveyor and first lower conveyor (Col. 8, Line 55-57) to produce a longitudinal compression, which produces a thicker mat that resists compression and tearing in the direction of the thickness. It would have been obvious to one of ordinary skill in the art at the time of the invention that a fibrous mat that resists compression and tearing in the direction of the thickness would have been useful in a multitude of applications such as insulation, ceiling tiles, floor tiles, acoustic paneling, and vehicle headliners. Therefore, it would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to use the pulling apparatus of Debouzie, and pulling the board of fibrous material at a speed slower than the speed of both the first upper conveyor and first lower conveyor, in the apparatus of Brossy and Barry to achieve the same longitudinal

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compression that would impart useful characteristics to the board such as improved resistance to compression and tearing in the direction of the thickness, as taught by Debouzie. **As to Claim 23**, Brossy and Barry are silent to the pulling apparatus pulling the board of fibrous material at a speed slower than the speed of both the first upper conveyor and first lower conveyor. Debouzie teaches employing a series of conveyors wherein the pulling apparatus pulls the board of fibrous material at a speed slower than the speed of both the first upper conveyor and first lower conveyor (Col. 8, Line 55-57) to produce a longitudinal compression, which produces a thicker mat that resists compression and tearing in the direction of the thickness. It would have been obvious to one of ordinary skill in the art at the time of the invention that a fibrous mat that resists compression and tearing in the direction of the thickness would have been useful in a multitude of applications such as insulation, ceiling tiles, floor tiles, acoustic paneling, and vehicle headliners. Therefore, it would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to use the pulling apparatus of Debouzie, pulling the board of fibrous material at a speed slower than the speed of both the first upper conveyor and first lower conveyor, in the apparatus of Brossy and Barry to achieve the same longitudinal compression that would impart useful characteristics to the board such as improved resistance to compression and tearing in the direction of the thickness, as taught by Debouzie.

Claims 10 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brossy (USPN 4,992,227) in view of Barry (USPN 6,030,559).

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Brossy in view of Barry teaches the subject matter of Claims 1 and 15. See the rejection of Claims 1 and 15 under 35 U.S.C. 103(a). **As to Claim 10**, Brossy teaches (Col. 2, Line 40-47) a mineral wool product. The fibrous mineral material sought by applicant in Claim 10 was prima facie obvious at the time of the invention. **As to Claim 24**, Brossy teaches (Col. 2, Line 40-47) a mineral wool product. The fibrous mineral material sought by applicant in Claim 10 was prima facie obvious at the time of the invention.

Claims 11 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brossy (USPN 4,992,227) in view of Barry (USPN 6,030,559), and further in view of Mazza (USPN 5,843,523).

Brossy in view of Barry teaches the subject matter of Claims 1 and 15. See rejection of Claims 1 and 15 under 35 U.S.C. 103(a). **As to Claim 11**, Brossy is silent to the pulling apparatus comprising a spiked wheel. Mazza teaches (Col. 7, Line 5-6) a driven spike roller for pulling material. The references are properly combined because both are directed to conveying a continuous web of fibers and application of a stiffening agent. It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to combine the spiked wheel of Mazza with the apparatus of Brossy to provide enhanced gripping of the fibrous web because enhanced gripping would result in further oriented fibers and an improved degree of smoothing. **As to Claim 25**, Brossy is silent to the pulling apparatus comprising a spiked wheel. Mazza teaches that which is set forth above. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the spiked wheel of Mazza with the

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apparatus of Brossy to provide enhanced gripping of the fibrous web because enhanced gripping would result in further oriented fibers and an improved degree of smoothing.

Claims 12 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brossy (USPN 4,992,227) in view of Barry (USPN 6,030,559).

Brossy in view of Barry teaches the subject matter of Claims 1 and 15. See the rejection of Claims 1 and 15 under 35 U.S.C. 103(a). **As to Claim 12**, Brossy teaches (Col. 5, Line 23-29) surfaces of the first upper and first lower conveyor are foraminous. Therefore, the foraminous surfaces sought by applicant in Claim 12 were prima facie obvious to one of ordinary skill at the time of the invention. **As to Claim 26**, Brossy teaches (Col. 5, Line 23-29) surfaces of the first upper and first lower conveyor are foraminous. Therefore, the foraminous surfaces sought by applicant in Claim 26 were prima facie obvious to one of ordinary skill at the time of the invention.

Claims 13 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brossy (USPN 4,992,227) in view of Barry (USPN 6,030,559).

Brossy in view of Barry teaches the subject matter of Claims 1 and 15. See the rejection of Claims 1 and 15 under 35 U.S.C. 103(a). **As to Claim 13**, Brossy teaches conveyors that no longer define strictly even surfaces after replacement of individual pallets due to wear or fouling (Col. 5, Line 38-42). The examiner takes the position that at a time before replacement of

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pallets, the conveyors would have defined even surfaces that were substantially smooth in order for Brossy to teach the distinction between these states. It would have also been obvious to one of ordinary skill that in order to perform surface smoothing as taught by Brossy, a substantially smooth surface would be required to avoid displacing fibers from the plane of the board and thereby roughening the board. Therefore, it would have been prima facie obvious to one of ordinary skill in the art at the time of the invention that the surfaces of the first upper conveyor and the first lower conveyor be substantially smooth in order to create a smoothed surface on the board. As to **Claim 27**, Brossy teaches conveyors that no longer define strictly even surfaces after replacement of individual pallets due to wear or fouling (Col. 5, Line 38-42). The examiner takes the position that at a time before replacement of pallets, the conveyors would have defined even surfaces that were substantially smooth in order for Brossy to teach the distinction between these states. It would have also been obvious to one of ordinary skill that in order to perform surface smoothing as taught by Brossy, a substantially smooth surface would be required to avoid displacing fibers from the plane of the board and thereby roughening the board. Therefore, it would have been prima facie obvious to one of ordinary skill in the art at the time of the invention that the surfaces of the first upper conveyor and the first lower conveyor be substantially smooth in order to create a smoothed surface on the board.

Claims 14 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brossy (USPN 4,992,227) in view of Barry (USPN 6,030,559).

Brossy in view of Barry teaches the subject matter of Claims 1 and 15. See the rejection of Claims 1 and 15 under 35 U.S.C. 103(a). **As to Claim 14**, it would have been prima facie obvious to one of ordinary skill in the art at the time of the invention combining the pulling apparatus of Barry in the apparatus of Brossy that the coefficient of friction between the board and the pulling rollers would have necessarily been greater relative to the coefficient of friction between the board and the surfaces of the first upper conveyor and first lower conveyor in order that the pulling action and forward motion of the board be present. **As to Claim 28**, it would have been prima facie obvious to one of ordinary skill in the art at the time of the invention combining the pulling apparatus of Barry in the apparatus of Brossy that the coefficient of friction between the board and the pulling rollers would have necessarily been greater relative to the coefficient of friction between the board and the surfaces of the first upper conveyor and first lower conveyor in order that the pulling action and forward motion of the board be present.

Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Brossy (USPN 4,992,227) in view of Barry (USPN 6,030,559).

Brossy in view of Barry teaches the subject matter of Claim 15. See the rejection of Claim 15 under 35 U.S.C. 103(a). Brossy further teaches driving one of the first upper conveyor and the first lower conveyor at a speed below 5 percent faster relative to the other of the first upper and the first lower conveyor (Col. 3, Line 34-38 and Col. 5, Line 48). Therefore, the about 0.4 to about 4.0 percent faster sought by applicant in Claim 29 is encompassed by the range

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taught by Brossy and would have been prima facie obvious to one of ordinary skill at the time of the invention.

(10) Response to Argument

Appellant's Argument A. The criteria for establishing a prima facie case of obviousness has not been met.

Appellant argues on Page 9 that neither the Brossy nor Barry reference teaches or suggests using a pulling apparatus to pull each of the surfaces of the fibrous material at different rates after the material has left an oven at a speed different from the speed of the first conveyor apparatus. Appellant further argues that neither Brossy nor Barry teaches the feature that the board is pulled downstream from the oven at a speed different from the speed of at least one of the first upper conveyor and first lower conveyor of the first conveyor apparatus, causing the material to skid relative to at least one of the first upper and first lower conveyor. It is noted that Appellant's arguments place particular emphasis on the *apparatus*, however, the claims are drawn to *methods*. Brossy discloses a method of smoothing the surface of mineral wool products by driving conveyors at different speeds (2:63-67) to provide a smooth and even surface (2:42-44). Brossy teaches that the bottom conveyor is the lead conveyor and conveys the product at a particular speed while the top surface is smoothed by a conveyor operating at a different speed (3:5-65). The Examiner submits that the limitations drawn to the relative speeds of the conveyors are met by these teachings. Brossy's Fig. 1A and 1B show that the lead conveyor, that which determines the speed of the line (Item 14) exists, at least partially, after and outside the oven (note the spatial relationship between conveyor 14 and oven, item 12). The Examiner

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submits that Brossy's bottom conveyor performs an identical function as the claimed pulling rollers in substantially the same way, and produces substantially the same results as the claimed apparatus, and therefore the claimed *method* does not appear to be patentably distinct. However, in the alternative, Barry teaches that pulling fiberglass webs through a furnace with pulling rollers is known in the art (2:31-37 and 8:41-42). The Examiner submits that a person of ordinary skill in the art would have recognized the interchangeability of the element shown in the method of Brossy for the pulling rollers of Barry. The Examiner further submits that Brossy's teaching that roughness (3:52-65) is imparted to the side of the fiberglass web facing the lead conveyor would have motivated one of ordinary skill to perform the smoothing operation on both faces simultaneously to avoid this roughness and the separate gluing operation for this side of the fiberglass web (4:40-50).

Appellant further argues on Page 10 that there is no teaching or suggestion that the rollers 18 and 19 of Barry could orient the web embedded in the foam material, rather, Barry teaches away from the invention by requiring that the sheets provide a stable and non-shearing environment in which the foam can free rise. However, it is noted that Barry was not relied upon for aspects of the orienting of the web, but only for the aspects of pulling material through an oven. Brossy teaches the orienting (3:5-65).

Appellant further argues on pages 10 and 11 that Barry's web is discontinuous and has large openings. Appellant further argues that the modification renders the Barry reference unsatisfactory for its intended purpose. However, Barry teaches a web having openings greater than 1/32 inch (2:21-23), the fibrous materials can be more than one layer (2:19-21), and that the glass fiber scrims can have a mesh construction of 20*20 filament elements per square inch

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(4:45-49). It is submitted that the ordinary artisan would have found Barry's pulling rollers equally suitable for conveying the fibrous web of Brossy. It is not clear to the Examiner how the modification renders Barry's reference unsuitable for its intended purpose of pulling material through an oven.

Appellant further argues on Pages 11 and 12 that no motivation exists for modifying the Brossy reference with that of Barry. It is submitted that the roughness or surface crust on the side of the article facing the lead conveyor would have motivated one to incorporate pulling rollers in order to avoid this roughness (3:56) and a separate gluing operation (4:40-50) for the second face.

Appellant's Argument B. The Barry reference is not relevant prior art.

Appellant argues on Page 12 that two criteria have evolved for determining whether prior art is analogous: 1) whether the art is from the same field of endeavor, regardless of the problem addressed, and 2) if the reference is not within the same field of endeavor, whether the reference is reasonably pertinent to the particular problem with which the inventor is involved. Appellant further argues on Page 13 that Barry cannot be considered to be within the inventor's field of endeavor merely because both relate to boards. It is noted that both the methods of Brossy (2:48-61) and Barry (4:38-49, 4:19, 6:54) are drawn to processing of fiberglass webs by application of a binder and transporting through an oven. It is the Examiner's position that these teachings are sufficient to render the two references within the same field of endeavor.

Appellant's Argument C. Each claim recites a novel and patentable invention.

Appellant argues on Page 14 that neither Brossy nor Barry teaches both a first conveyor apparatus and a pulling apparatus that each has elements which move at different speeds relative to one another. Appellant further argues that neither reference teaches that the fibrous material is pulled downstream from the oven at a speed different from the speed of at least one of the first upper and first lower conveyor, causing skidding relative to one of the first upper conveyor and the first lower conveyor. It is noted that Appellant's arguments place particular emphasis on the *apparatus*, however, the claims are drawn to *methods*. Brossy discloses a method of smoothing the surface of mineral wool products by driving conveyors at different speeds (2:63-67) to provide a smooth and even surface (2:42-44). Brossy teaches that the bottom conveyor is the lead conveyor and conveys the product at a particular speed while the top surface is smoothed by a conveyor operating at a different speed (3:5-65). Brossy's lead conveyor provides the claimed pulling action, but using a different apparatus. Additionally, Brossy teaches a conveyor which would inherently cause skidding by driving a conveyor at a speed different than the speed at which the fibrous material is being conveyed. The particular speed ratio between the lead conveyor, which determines the rate of advance of the product, and the smoothing conveyor is taught to be a result effective variable which can be optimized (3:25-48). See MPEP 2144.05 II and *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). The Examiner submits that the limitations drawn to the relative speeds of the conveyors are met by these teachings. The Examiner submits that Brossy's bottom conveyor performs an identical function as the claimed pulling rollers in substantially the same way, and produces substantially the same results as the claimed apparatus, and therefore the claimed *method* does not appear to be patentably distinct. However, in the alternative, Barry teaches that pulling fiberglass webs through a furnace with

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pulling rollers is known in the art (2:31-37 and 8:41-42). The Examiner submits that a person of ordinary skill in the art would have recognized the interchangeability of the element shown in the method of Brossy for the pulling rollers of Barry.

Appellant argues on Page 15 that Claim 15 is separately patentable driving one of the first upper conveyor and first lower conveyor at a speed faster relative to the other of the first upper conveyor and first lower conveyor. Appellant further argues that each surface of the board is pulled at a different rate within the oven so that the heat and differential stretching caused by the pulling surprisingly forms a desirably smooth surface. The Examiner notes that this argument does not appear to be commensurate with the scope of the claim which requires only that the fibrous material is caused to “skid relative to the at least one of the first upper conveyor and the first lower conveyor” (emphasis added). However, the Examiner submits that Brossy clearly teaches the skidding by at least one of the first conveyors (3:5-65) and also teaches the relative speed ratio to be a result effective variable (3:25-48), and optimization would have therefore been obvious to the ordinary artisan. See MPEP 2144.05 II and *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Appellant’s Argument D. Various dependent claims are separately patentable over the Brossy, Barry, and Debouzie and Mazza references.

Appellant argues on pages 15 and 16 that Claims 4 and 18 are patentable because neither Brossy nor Barry teaches a second conveyor assembly. Appellant additionally argues that each surface of the board is pulled at a different rate within the oven so that the heat and differential stretching caused by the pulling forms a desirably smooth surface. The Examiner submits that

Barry's pull rolls (Fig. 1, Items 18 and 19) inherently convey, and are therefore conveyors. The Examiner notes that the argument that each surface of the board is pulled at a different rate within the oven does not appear to be commensurate with the scope of the independent claims upon which these claims depend (See response to Appellant's Argument C).

Appellant argues on pages 16 and 17 that claims 5 and 19 are patentable because neither Brossy no Barry teaches that each surface of the board is pulled at a different rate within the oven so that the heat and differential stretching caused by the pulling forms a desirably smooth surface. The Examiner submits that Brossy clearly teaches the relative speed ratio to be a result effective variable (3:25-48), and optimization would have therefore been obvious to the ordinary artisan. See MPEP 2144.05 II and *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). The Examiner notes that the argument that each surface of the board is pulled at a different rate within the oven does not appear to be commensurate with the scope of the independent claims upon which these claims depend (See response to Appellant's Argument C).

Appellant argues on pages 17 that claims 6 and 20 are patentable because neither Brossy no Barry teaches that the board is pulled at a speed slower than the speed of the at least one of the first upper and the first lower conveyor. Appellant further argues that each surface of the board is pulled at a different rate within the oven so that the heat and differential stretching caused by the pulling forms a desirably smooth surface. The Examiner submits that Brossy clearly teaches the relative speed ratio to be a result effective variable (3:25-48), and optimization would have therefore been obvious to the ordinary artisan. See MPEP 2144.05 II and *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). The Examiner notes that the argument that each surface of the board is pulled at a different rate within the oven does not

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appear to be commensurate with the scope of the independent claims upon which these claims depend (See response to Appellant's Argument C).

Appellant argues on pages 17-19 that claim 7 is patentable because a) without the Barry reference there is no further motivation to find the inventive method, and b) the Debouzie reference teaches away from the present invention by stating that the speeds of the pairs of conveyors are regulated to ensure the same rate of progress of the two faces of the felt. The Examiner submits that the combination of Brossy and Barry is valid for the reasons cited in this answer. The Examiner also submits that the portion of the reference to Debouzie cited by the Appellant's arguments on Page 19 should be read in light of Debouzie's teaching that "Generally, the speeds of the pairs of conveyors 7, 8, 9, 10, 11, 12 are regulated to ensure the same rate of progress of the two faces of the felt" (Emphasis added, 6:35-39) and further in light of Debouzie's additional teaching that "For the conveyor 8, it is found experimentally that a speed slightly greater than that which corresponds to the progression imposed by the conveyor 7 can encourage formation of this surface layer and even to a certain extent favour re-arrangement of the fibers within the felt. The excess speed of the conveyor 8 must, however, be limited in order not to compromise the structure of the felt." (Emphasis added, 6:47-55) It should also be noted in Fig. 4 that conveyors 7 and 8, referenced by Debouzie's teachings, are in directly opposed relationship. Debouzie's teachings at 8:55-57 should also be noted for teaching "The speed of the conveyors 9 and 10 is less than that of the conveyors 7 and 8. The speed ratio gives the rate of longitudinal compression." Stated another way, this teaching of Debouzie appears to be that it is known to drive a first pair of conveyors (Items 7 and 8 in Fig. 4) at a speed different than the pulling conveyors (Fig. 4, Items 9 and 10) in order to cause longitudinal compression.

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Therefore, when all of the embodiments of Debouzie are considered, Debouzie provides teaching that conveyors 7 and 8 (Fig. 4), in opposed configuration, operate at different relative speeds, and the speeds of both conveyors (Items 7 and 8 in Fig. 4) are different than the pulling conveyors, Items 9 and 10 in Fig. 4, in order to cause a surface effect and longitudinal compression.

Appellant argues on page 19-20 that claims 8, 21, and 22 are patentable because none of the cited references teaches pulling the board of fibrous material downstream from the oven at a speed different from the speed of at least one of the first upper conveyor and first lower conveyor, causing the fibrous material to skid relative to the at least one of the first upper and first lower conveyor. Appellant further argues that there is no teaching in the Debouzie reference where a top conveyor is driven at a rate different from a bottom conveyor. Appellant further argues that each surface of the board is pulled at a different rate within the oven so that the heat and differential stretching caused by the pulling forms a desirably smooth surface. The Examiner submits that Debouzie's teachings regarding the conveyor speeds should be considered: "For the conveyor 8, it is found experimentally that a speed slightly greater than that which corresponds to the progression imposed by the conveyor 7 can encourage formation of this surface layer and even to a certain extent favour re-arrangement of the fibers within the felt. The excess speed of the conveyor 8 must, however, be limited in order not to compromise the structure of the felt." (Emphasis added, 6:47-55) It should also be noted in Fig. 4 that conveyors 7 and 8 are in directly opposed relationship. Debouzie's teachings at 8:55-57 should also be noted for teaching "The speed of the conveyors 9 and 10 is less than that of the conveyors 7 and 8. The speed ratio gives the rate of longitudinal compression." Stated another way, Debouzie also provides

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teaching that it is known to drive a first pair of conveyors (Items 7 and 8 in Fig. 4) at a speed different than the pulling conveyors (Fig. 4, Items 9 and 10) in order to cause longitudinal compression. Therefore, when all of the embodiments of Debouzie are considered, Debouzie provides teaching that conveyors 7 and 8 (Fig. 4) operate at different relative speeds, and the speeds of both conveyors (Items 7 and 8 in Fig. 4) are different than the pulling conveyors, Items 9 and 10 in Fig. 4, in order to cause a surface effect and longitudinal compression.

Appellant argues on pages 20 and 21 that claims 9 and 23 are patentable because none of the cited references teaches pulling the board of fibrous material downstream from the oven at a speed different from at least one of the first upper and first lower conveyor. Appellant further argues that Debouzie requires that the speeds of the pairs of conveyors are regulated to ensure the same rate of progress of the two faces. Appellant further argues that each surface of the board is pulled at a different rate within the oven so that the heat and differential stretching caused by the pulling forms a desirably smooth surface. The Examiner submits that Debouzie's teachings regarding the conveyor speeds should be considered: "For the conveyor 8, it is found experimentally that a speed slightly greater than that which corresponds to the progression imposed by the conveyor 7 can encourage formation of this surface layer and even to a certain extent favour re-arrangement of the fibers within the felt. The excess speed of the conveyor 8 must, however, be limited in order not to compromise the structure of the felt." (Emphasis added, 6:47-55) It should also be noted in Fig. 4 that conveyors 7 and 8 are in directly opposed relationship. Debouzie's teachings at 8:55-57 should also be noted for teaching "The speed of the conveyors 9 and 10 is less than that of the conveyors 7 and 8. The speed ratio gives the rate of longitudinal compression." Stated another way, Debouzie also provides teaching that it is

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known to drive a first pair of conveyors (Items 7 and 8 in Fig. 4) at a speed different than the pulling conveyors (Fig. 4, Items 9 and 10) in order to cause longitudinal compression.

Therefore, when all of the embodiments of Debouzie are considered, Debouzie provides teaching that conveyors 7 and 8 (Fig. 4) operate at different relative speeds, and the speeds of both conveyors (Items 7 and 8 in Fig. 4) are different than the pulling conveyors, Items 9 and 10 in Fig. 4, in order to cause a surface effect and longitudinal compression.

Appellant argues on pages 21 and 22 that claims 14 and 28 are patentable because neither Brossy nor Barry teaches a pulling apparatus having a coefficient of friction greater relative to the surfaces of the first pulling conveyor's first upper conveyor and first lower conveyor.

Appellant further argues that each surface of the board is pulled at a different rate within the oven so that a desirably smooth surface is formed. The Examiner submits that it would have been obvious to the ordinary artisan that the pulling rollers of Barry would obviously require a coefficient of friction such that the rollers were capable of performing their intended function of pulling an object from an oven.

Appellant argues on page 22 that claim 29 is patentable because neither Brossy nor Barry teaches the relative speed range or pulling the board from the oven at a speed different from the speed of at least one of the first upper conveyor and first lower conveyor. Appellant further argues that each surface of the board is pulled at a different rate within the oven so that the heat and differential stretching caused by the pulling forms a desirably smooth surface. The Examiner submits that Brossy clearly teaches the relative speed ratio to be a result effective variable (3:25-48), and optimization would have therefore been obvious to the ordinary artisan. See MPEP 2144.05 II and *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). The

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Examiner notes that the argument that each surface of the board is pulled at a different rate within the oven does not appear to be commensurate with the scope of the independent claims upon which this claim depends (See response to Appellant's Argument C).

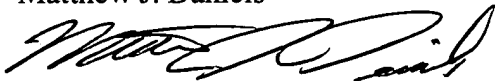
(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Matthew J. Daniels



Conferees:

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